WHAT IS CLAIMED IS:

1. A method of controlling bacterial growth, comprising exposing a bacterium to a compound of structure I

wherein E is selected from the group consisting of B, P, and S, T_1 and T_2 are each independently selected from the group consisting of O, NR, and CH₂, where R = H or C_1 - C_8 alkyl, or C_1 - C_8 oxoalkyl, and L is selected from the group consisting of ethylene, propylene, and four to six-membered alicyclic and aromatic rings, provided that structure I does not include AI-2-borate.

- 2. The method of claim 1, wherein E is B.
- 3. The method of claim 2, wherein T_1 and T_2 are O.
- 4. The method of claim 1, wherein the compound has a molecular weight less than about 750 Da.
- 5. The method of claim 4, wherein the molecular weight is less than about 500 Da.
 - 6. The method of claim 1, wherein E is P.
 - 7. The method of claim 6, wherein T_1 and T_2 are O.
- 8. The method of Claim 1 comprising administering a therapeutically effective amount of the compound to a human.
- 9. The method of Claim 1 in which the bacterium is exposed to an amount of the compound that affects biofilm formation.